Claims

1. A fermentation process with continuous mass cultivation of ciliates (protozoa) for producing biogenous valuable substances, where the biomass containing the biogenous valuable substances is obtained by continuous cell extraction, which comprises cultivating the ciliate cells in a complex axenic medium.

2. The fermentation process as claimed in claim 1, wherein the ciliates belong to one of the taxonomic groups Holotricha, Peritricha, Spirotricha and Suctoria, in particular to the orders Tetrahymena, Paramecium, Colpoda, Glaucoma, Parauronema, Engelmanniella, Stylonichia, Euplotes and Colpidium, which include, in addition to the wild strains, also mutants and/or recombinants of these strains.

3. The fermentation process as claimed in claim 1 ~~or 2~~, wherein the fermentation is carried out in a stirred or bubble column or airlift fermenter.

4. The fermentation process as claimed in ~~any of claims 1 to 3~~ claim 1, wherein the fermentation is carried out at a pH in the range from pH 4 to pH 9 and/or a fermentation temperature in the range from about 15 to about 40°C.

5. The fermentation process as claimed in ~~any of claims 1 to 4~~ claim 1, wherein the medium contains a carbon source which comprises one or more substances from the group consisting of: glucose, fructose, xylose, sucrose, maltose, starch, fucose, glucosamine, lactose, molasses, dextran, fatty acids (for example oleic acid), soya oil, sunflower oil, glycerol, glutamic acid, mannitol, skim-milk powder and acetate.

6. The fermentation process as claimed in claim 5, wherein the concentration of the carbon source has a value in the range from about 0.2 to about 20% by weight, based on the culture medium.

7. The fermentation process as claimed in ~~any of claims 1 to 6~~ claim 1, wherein the medium contains a nitrogen source which comprises

one or more substances from the group consisting of: peptones, yeast extract, malt extract, meat extract, skim-milk powder, casamino acid, corn steep liquor, Na-glutamate, urea, ammonium acetate, ammonium sulfate, ammonium chloride and ammonium nitrate.

8. The fermentation process as claimed in claim 7, wherein the concentration of the nitrogen source has a value in the range from about 0.1 to about 10% by weight, based on the culture medium.

9. The fermentation process as claimed in ~~any of claims 1 to 8~~ claim 1, wherein the medium contains at least one phosphate source, preferably potassium phosphate and/or potassium dihydrogen phosphate.

10. The fermentation process as claimed in ~~any of claims 1 to 9~~ claim 1, wherein the medium contains one or more of the following substances: ammonium sulfate, sodium sulfate, magnesium, iron, copper, calcium, vitamins, trace elements.

11. The fermentation process as claimed in ~~any of claims 1 to 10~~ claim 1, wherein the medium contains killed biomass of feed organisms of the ciliates.

12. The fermentation process as claimed in ~~any of claims 1 to 11~~ claim 1, wherein the cells contained in the cell extract (= harvested biomass) are separated off from the culture medium by centrifugation and/or tangential filtration and/or microfiltration and/or sedimentation and/or flotation.

13. The fermentation process as claimed in ~~any of claims 1 to 12~~ claim 1, wherein the cell extraction rate or dilution rate (= the volume that is exchanged per day/the operating volume of the fermenter) has a value in the range from 0.1 to 12.

14. The fermentation process as claimed in ~~any of claims 1 to 13~~ claim 1, wherein the biogenous valuable substances are one or more substance(s) from the group consisting of: peptides and proteins, in particular enzymes, fatty acids and lipids, polysaccharides, nucleic

acids, secondary metabolites and polymers, or else the biomass itself is a valuable substance (for example animal feed).

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